

# OFFICE MEMORANDUM



MICHIGAN

STATE HIGHWAY DEPARTMENT

May 17, 1965

To: E. A. Finney, Director  
Research Laboratory Division

From: M. G. Brown

Subject: Evaluation of "Ethafoam" Proposed Joint Sealer. Research Project 64 NM-126.  
Research Report No. R-518.

In accord with a decision at the New Materials Committee meeting of September 28, 1964, a preliminary laboratory evaluation of Ethafoam has been completed and is reported here.

J. S. Laing, of Plastics Development and Service, Dow Chemical Co., Midland, had indicated in a letter to W. W. McLaughlin dated August 4, 1964, that Ethafoam might be a suitable alternate to preformed neoprene joint seal. Ethafoam is a flexible and resilient polyethylene foam made in various shapes and densities of 1.8 to 2.6 pcf. A sheet of Ethafoam 1-1/2 in. thick was received in November 1964, and specimens 1 and 1-1/4 in. wide were cut from it for testing.

The 1 and 1-1/4 in. wide by 1-1/2 in. deep specimens were precompressed 50 percent and run in the recovery test similarly to neoprene, except that 158 F (70 C) was used for the high temperature test as compared with 212 F for neoprene. Company literature indicated that Ethafoam undergoes permanent set at temperatures of 160 F or higher. The 158 F is also a fairly common heat-aging temperature. The following table briefly summarizes the recovery tests and compares them with our current limits for neoprene. Note that permanent set does occur at 158 F in the Ethafoam.

Sample Condition	Ethafoam		Neoprene (Current Specification)	
	Recovery, percent of original width		Sample Condition	Minimum Recovery, percent
	1 in.	1-1/4 in.		
70 hr at 158 F	50	50	70 hr at 212 F	85
22 hr at 158 F	50	50	70 hr at 14 F	85
22 hr at -20 F	69	70	22 hr at -20 F	80

Note that the percent recovery figures in the current joint sealing specification for neoprene refer to the percent of original unconfined width after exposure to the test temperature while compressed 50 percent. The values of 50 percent for the Ethafoam after both 22 and 70 hr at 158 F indicate no recovery, or that the specimens remained at the 50-percent compression thickness after standing unconfined for 1 hr at room temperature.

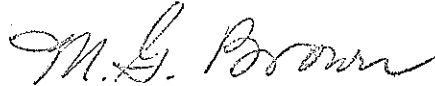
E. A. Finney

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Due to the poor recovery properties, as measured, the Ethafoam appears to have little value as an alternate compressible sealer for transverse pavement joints. No additional testing along these lines appears to be indicated.

OFFICE OF TESTING AND RESEARCH



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MGB:nl

cc: A. J. Permoda  
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